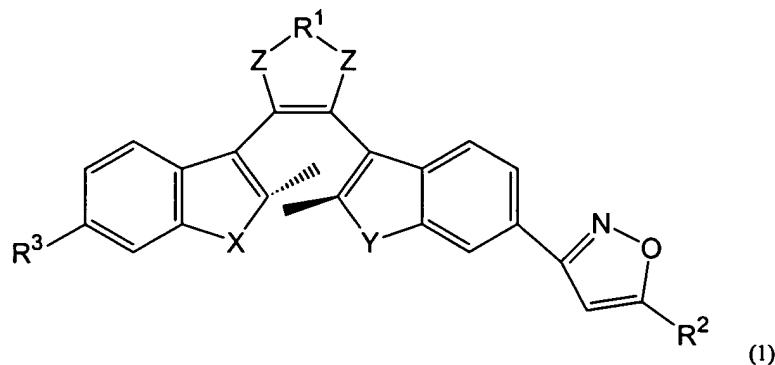


B. Amendments to the Claims

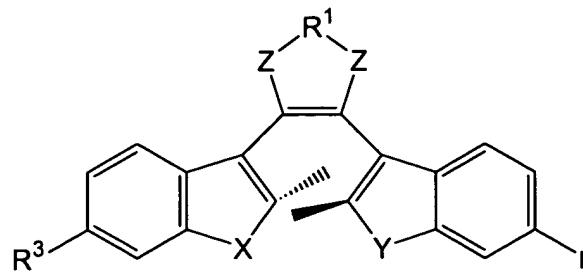
1. (ORIGINAL) A photochromic diarylethene compound having isoxazole group expressed in the following formula (1),



wherein R¹ is a direct bond, O, or C₁-C₃ alkylene optionally substituted with fluoro; R² is a hydrogen atom, (CR⁴H)_nOH or C₆(R⁵)_mH₁; R³ is selected from the group consisting of a hydrogen atom, phenylisoxazole, hydroxymethylisoxazole, acetyl, hydroxy, and phenyl; R⁴ is C₁-C₁₀ alkyl; R⁵ is chloro, nitro, bromo, or the same as R⁴; X and Y are independently O, N, or S; Z is methylene optionally substituted with fluoro or carbonyl; and n, m and l are an integer of 1 to 5.

2. (ORIGINAL) A method for preparing said diarylethene compound comprising the steps:

- (i) formylating diarylethene compound of formula (2);
- (ii) reacting the formylated compound with NH₂OH · HCl and aqueous basic solution in series and reacting with N-chlorosuccinimide (NCS); and
- (iii) reacting with acetylene compound substituted with R² in the presence of base catalyst,

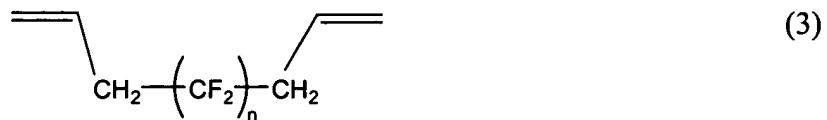


(2)

wherein R¹ is a direct bond, O or C₁-C₃ alkylene optionally substituted with fluoro; R³ is selected from the group consisting of a hydrogen atom, phenylisoxazole, hydroxymethylisoxazole, acetyl, hydroxy, and phenyl; X and Y are independently O, N, or S; and Z is methylene optionally substituted with a fluoro atom or carbonyl.

3. (ORIGINAL) A photochromic diarylethene composition comprising 0.1-90wt.% of the compound of claim 1, 10-89.9wt.% of one or more resin selected from the group consisting of polyolefin, polycarbonate, polymethylmethacrylate, polyester, polyvinyl alcohol, polyurethane, and polyimide, and 10-89.9wt.% of one or more solvent.

4. (ORIGINAL) A photochromic diarylethene composition comprising 0.1-90wt.% of the compound of claim 1, 10-99.8wt.% of fluorinated diacrylate monomer of formula (3), 0-80wt.% of monomer or oligomer having unsaturated group, 0.1-10wt.% of initiator of polymerization selected from thermalpolymerizaiton initiator or photopolymerizaiton initiator, and 0-90wt.% of one or more solvent,



wherein n is an integer of 0 to 10.

5. (ORIGINAL) The photochromic diarylethene composition according to claim 3, wherein said solvent is selected from the group consisting of acetone, hexane,

acetonitrile, C₁-C₁₀ alcohol, dimethylformamide, tetraalkoxysilane, trialkoxysilane, dialkoxysilane, sulfuric acid, hydrochloric acid, organic acid, dimethylsulfoxide, pyridine, N-methylpyrrolidinone (NMP), sulfolane, α- methylnaphthalene, methoxynaphthalene, chloronaphthalene, diphenylethane, ethylene glycol, quinoline, dichloromethane, dichlorobenzene, dichlorotoluene, propylene carbonate, xylene, methyl ethyl ketone, chloroform, methylene chloride, trichloroethane, trichloroethylene, tetrahydrofuran, 1,4-dioxane and water.

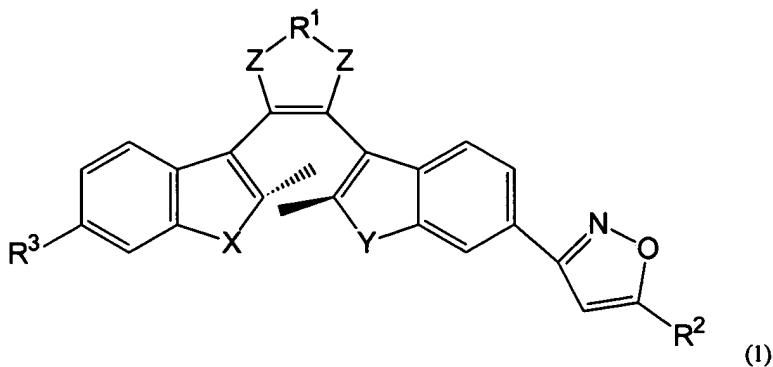
6. (ORIGINAL) The photochromic diarylethene composition according to claim 4, wherein said organic solvent is selected from the group consisting of acetone, hexane, acetonitrile, C₁-C₁₀ alcohol, dimethylformamide, tetraalkoxysilane, trialkoxysilane, dialkoxysilane, sulfuric acid, hydrochloric acid, organic acid, dimethylsulfoxide, pyridine, N-methylpyrrolidinone (NMP), sulfolane, α- methylnaphthalene, methoxynaphthalene, chloronaphthalene, diphenylethane, ethylene glycol, quinoline, dichloromethane, dichlorobenzene, dichlorotoluene, propylene carbonate, xylene, methyl ethyl ketone, chloroform, methylene chloride, trichloroethane, trichloroethylene, tetrahydrofuran, 1,4-dioxane and water.

7. (ORIGINAL) The photochromic diarylethene composition according to claim 4, wherein said unsaturated monomer is selected from the group consisting of methyl methacrylate, butyl methacrylate, styrene, and α-methylstyrene.

8. (ORIGINAL) The photochromic diarylethene composition according to claim 4, wherein said polymerization initiator is selected from the group consisting of benzoyl peroxide, 2,2'-azobisisobutyronitrile, and bis(1,1-dimethylethyl)peroxide, 1-hydroxycyclohexyl phenyl ketone, benzophenone, 2-hydroxy-1-[4-hydroxyethoxy]phenyl]-2-methyl-propanone, 2,2-dimethoxy-2-phenylacetophenone, fluorinated diaryltitanocene, and 2,2-bis(hydroxymethyl)propionic acid.

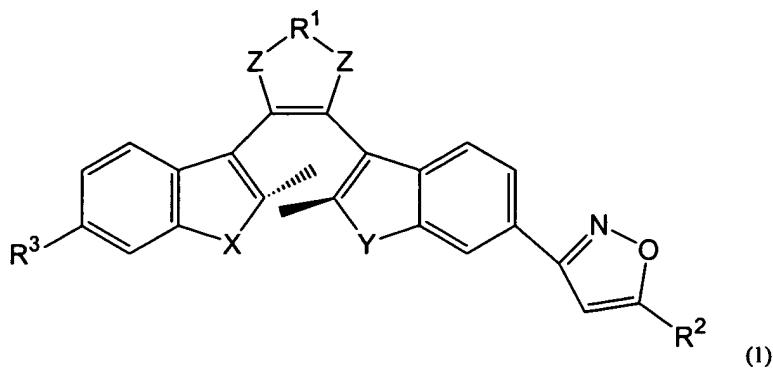
9. (CURRENTLY AMENDED) A photochromic diarylethene thin film prepared by coating ~~the compound of claim 1~~ + a photochromic diarylethene compound having

isoxazole group expressed by formula (1).



wherein R¹ is a direct bond, O, or C₁-C₃ alkylene optionally substituted with fluoro; R² is a hydrogen atom, (CR⁴H)_nOH or C₆(R⁵)_mH₁; R³ is selected from the group consisting of a hydrogen atom, phenylisoxazole, hydroxymethylisoxazole, acetyl, hydroxy, and phenyl; R⁴ is C₁-C₁₀ alkyl; R⁵ is chloro, nitro, bromo, or the same as R⁴; X and Y are independently O, N, or S; Z is methylene optionally substituted with fluoro or carbonyl; and n, m and l are an integer of 1 to 5, or and a photochromic thin film composition selected from the compositions of any of claims 2-6 on a substrate selected from conducting electrode substrate such as aluminum foil, aluminum drum, aluminum plate, platinum, Myler film, copper plate, conducting glass and conducting plastic; or a substrate such as polypropylene, propylene carbonate, polymethylmethacrylate, polyurethane, plastic, and glass.

10. (CURRENTLY AMENDED) A recording material, photochromic window, indicating element, plastic mirror, photochromic filter, photo switch, photosensitive drum, recording element, solar cell, lens, fiber, or optical element containing the compound selected from the compound of claim 1, a photochromic diarylethene compound having isoxazole group expressed by formula (1),



wherein R¹ is a direct bond, O, or C₁-C₃ alkylene optionally substituted with fluoro; R² is a hydrogen atom, (CR⁴H)_nOH or C₆(R⁵)_mH₁; R³ is selected from the group consisting of a hydrogen atom, phenylisoxazole, hydroxymethylisoxazole, acetyl, hydroxy, and phenyl; R⁴ is C₁-C₁₀ alkyl; R⁵ is chloro, nitro, bromo, or the same as R⁴; X and Y are independently O, N, or S; Z is methylene optionally substituted with fluoro or carbonyl; and n, m and l are an integer of 1 to 5, and one of said compositions of claims 2-6.